ISO

National

ORDER NO.SD-280

Service Manual

STEREO INTEGRATED AMPLIFIER

MODEL **SU-3400**

TECHNICAL SPECIFICATIONS

(Specifications are subject to change without notice.)

POWER AMPLIFIER SECTION

IHF Musik Power :			120W (4Ω)
RMS Power :			90W (8Ω)
			42/42W (4Ω)
			35/35W (8Ω)
Harmonic Distortion :			0.2%
Intermodulation Distortion (60Hz + 7kHz — 4 : 1, SMPTE) :			0.2%
Power Bandwidth :		5Hz~50kHz	−3dB
Frequency Response :		5Hz~100kHz	$^{+0}_{-3}$dB
S/N (IHF, A) :			110dB
Input Sensitivity & Impedance :			1V/50KΩ
Damping Factor :			50 (8Ω)
Rated Load :			4~16Ω

PRE-AMPLIFIER SECTION

Input Sensitivity & Impedance :	PHONO		2mV (30K, 50K, 100KΩ)
	TUNER & AUX		100mV (80KΩ)
Max. Input Voltage (THD : 0.1% at 1kHz) :			100mV
Harmonic Distortion :			0.1%
S/N (IHF, A) :	PHONO		73dB
	TUNER & AUX		85dB
Output Voltage :	Rated		1V 200Ω
	Max. (THD. 0.1% at 1kHz)		3V
Frequency Response (Volume-Max ; Tone Control-Flat) :	PHONO (Deviation from RIAA standard)		±1dB
	TUNER & AUX	5Hz~60kHz	$^{+0}_{-3}$dB
Tone Controls :	Bass	50Hz. +16dB	−16dB
	Treble	20kHz. +14dB	−14dB
Turn-Over Frequency :	Bass	150Hz	500Hz
Turn-Over Frequency :	Treble	2kHz	6kHz
Tape Monitor (TAPE DECK 1, TAPE DECK 2) :		PLAY BACK	100mV (60KΩ)
REC/PLAY (DIN)		REC OUT	100mV (10KΩ)
		Input	100mV (60KΩ)
		Output	100mV (10KΩ)

GENERAL

Power Consumption :	17~270W
AC Power Supply :	110/120/220/240V
Dimensions (W × H × D) :	16-1/8" ×5-1/2" ×11-13/16" (410×140×300)mm
Weight :	22.8lbs (10.2kg)

TECHNISCHE DATEN (Änderungen vorbehalten)

(Erfüllt die Mindestanforderungen nach DIN 45 500)

ENDVERSTÄRKERTEIL

Musikleistung (bei Aussteuerung beider Kanale)		2×60W (4Ω)
		2×45W (8Ω)
Nennleistung (Sinusleistung, bei Aussteuerung beider Kanäle) :		2×35W (4Ω)
		2×28W (8Ω)
Klirrfaktor	0.2% bei 1000Hz. Nennleistung	(4Ω)
	0.2% bei 40~16000Hz. Nennleistung	(4Ω)
Intermodulation :	0.2% bei 250/8000 — 4 : 1. Nennleistung	(4Ω)
Leistungsbandbreite :	7~12000Hz	(−3dB)
Frequenzgang :	5~50000Hz	($^{+0}_{-3}$dB)
Endverstärker Eingänge :		1V/50KΩ
Dämpfungsfaktor :		25 (4Ω)
		50 (8Ω)
Ausgänge Lautsprecher :		4~16Ω

VORVERSTÄRKERTEIL

Fremdspannungsbstand :	bei 50mW Ausgangsleistung	
	PHONO (MAG)	52 dB
	TUNER, AUX	52 dB
	bei Nennleistung	
	PHONO (MAG)	73 dB
	TUNER, AUX	85 dB
Eingänge :	PHONO (MAG)	2mV/30K, 50K, 100KΩ
	TUNER, AUX	100mV/80KΩ
Max. Eingangsspannungen :	PHONO (MAG)	100mV bei 1000Hz
Klangregler :	Tiefen-Bereich (BASS)	±16dB bei 50Hz
	Höhen-Bereich (TREBLE)	±14dB bei 2000Hz
Übergangs-Frequenz :	Bass	150Hz 500Hz
	Treble	2000Hz 6000Hz
Balanceregler (Regelumfang) :		Von 0 bis ∞
TAPE DECK 1 & 2 (Tonbandgerät)		
PLAY BACK (Wiedergabe) :		100mV/ 60KΩ
REC OUT (Aufnahme) :		100mV/ 10KΩ
REC/PLAY (Norm Buchse) :	Wiedergabe	100mV/ 60KΩ
	Aufnahme	100mV/ 10KΩ
Vorverstärker :	Ausgangsspannungen 1V/200Ω Nennleistung	
	Max. Ausgangsspannungen	3V

ALLGEMEINE DATEN

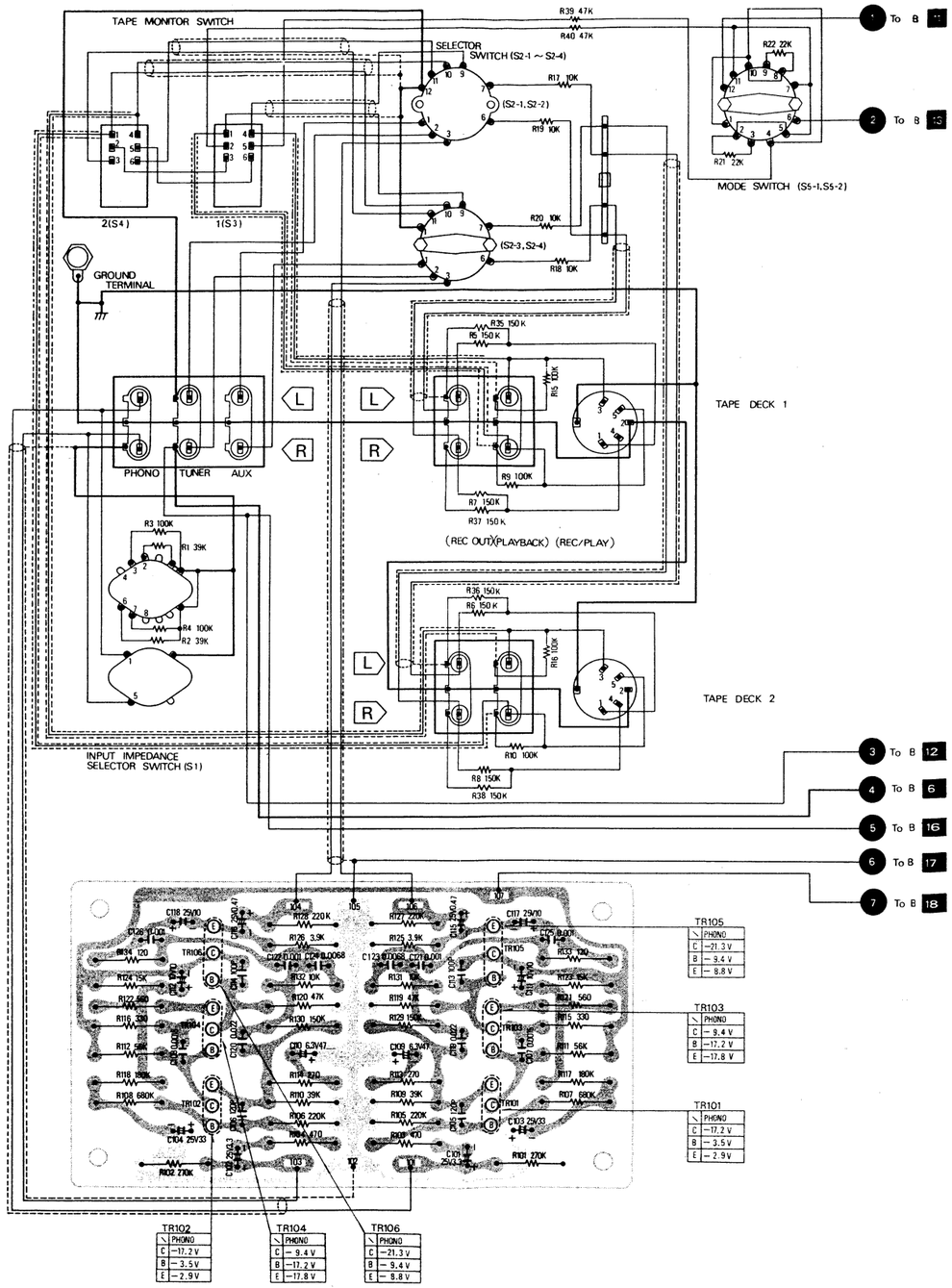
Leistungsaufnahme :	17~270W
Netzspannungumschalter :	110/120/220/240V
Abmessungen (B×H×T) :	410×140×300mm
Gewicht :	10.2kg

<EXPORT DIVISION>
MATSUSHITA ELECTRIC TRADING CO., LTD.
P. O. Box 288, Central Osaka, Japan

MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.
RADIO and STEREO DIVISION

A Equalizer Circuit Board Model SU-3400

⊕ Line
Earth Line

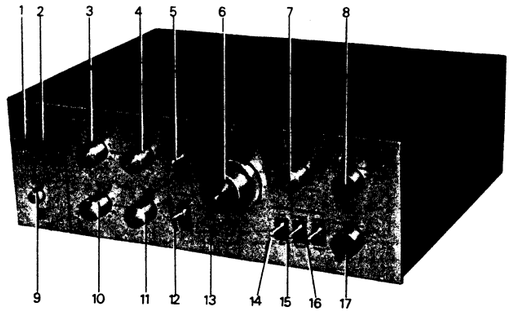


■ LOCATION OF CONTROLS

■ ANORDNUNG DER EINSTELLKNÖPFE

● Each unit destined for Germany is contained in a wooden case

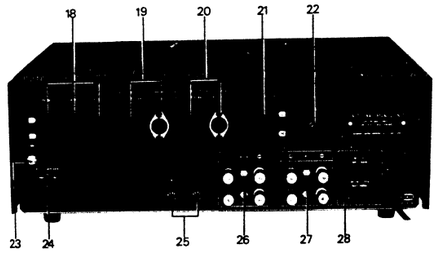
1 MAIN SPEAKERS SWITCH
2 REMOTE SPEAKERS SWITCH
3 TREBLE CONTROL (LEFT)
4 TREBLE CONTROL (RIGHT)
5 TURN-OVER FREQUENCY SWITCH (TREBLE)
6 PRE-SET VOLUME CONTROL
7 BALANCE CONTROL
8 SELECTOR SWITCH
9 POWER SOURCE SWITCH
10 BASS CONTROL (LEFT)
11 BASS CONTROL (RIGHT)
12 TURN-OVER FREQUENCY SWITCH (BASS)
13 HEADPHONES
14 LOUDNESS SWITCH
15 TAPE MONITOR SWITCH (TAPE 1)
16 TAPE MONITOR SWITCH (TAPE 2)
17 MODE SWITCH

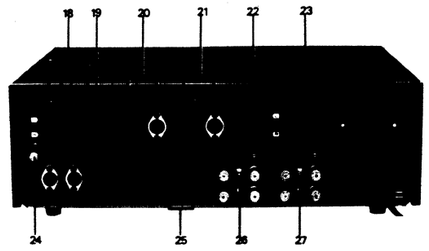


● Das nach Deutschland zu liefernde Gerät ist in die Holzkiste eingepackt.

1. MAIN-LAUTSPRECHERSCHALTER
2. REMOTE-LAUTSPRECHERSCHALTER
3. LINKER-HÖHENREGLER (TREBLE)
4. RECHTER-HÖHENREGLER (TREBLE)
5. UMKEHR FREQUENZSCHALTER (TREBLE)
6. PRE-SET LAUTSTÄRKENREGLER
7. BALANCEREGLER
8. BEREICHSSCHALTER
9. NETZSCHALTER
10. LINKER-TIEFENREGLER (BASS)
11. RECHTER-TIEFENREGLER (BASS)
12. UMKEHR FREQUENZSCHALTER (BASS)
13. KOPFHÖRER
14. LOUDNESS-SCHALTER (FÜR GEHÖRRICHTINGE LAUTSTÄRKE)
15. TAPE-MONITOR1-SCHALTER (TONBAND)
16. TAPE-MONITOR2-SCHALTER (TONBAND)
17. MODE-SCHALTER

Set for Germany



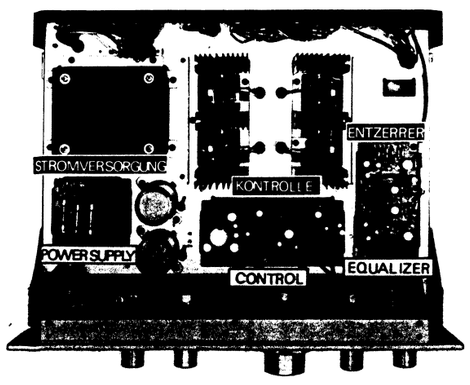


18 INPUT TERMINALS
19 TAPE MONITOR TERMINALS (DECK 1)
20 TAPE MONITOR TERMINALS (DECK 2)
21 PRE & MAIN AMP CONNECTOR TERMINALS
22 POWER SOURCE VOLTAGE SELECTOR SWITCH
23 GROUND TERMINAL
24 "PHONO" IMPEDANCE SELECTOR SWITCH
25 SPEAKER PROTECTION FUSES
26 MAIM SPEAKER TERMINALS
27 REMOTE SPEAKER TERMINALS
28 AC OUTLETS

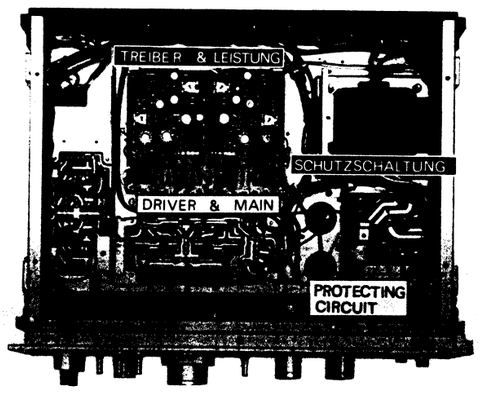
18 EINGANGSKLEMMEN (PHONO & TUNER)
19 EINGANGSKLEMMEN (AUX)
20 TAPE-MONITOR1-BUCHSEN (TONBAND) (DECK 1)
21 TAPE-MONITOR2-BUCHSEN (TONBAND) (DECK 2)
22 VORVERSTÄRKER & VERSTÄRKER ANSCHLUßKLEMME
23 NETZEINSTELLUNG
24 ERDE
25 LAUTSPRECHER SICHERUNG
26 MAIN-LAUTSPRECHERANSCHLUSSE
27 REMOTE-LAUTSPRECHERANSCHLÜSSE

■ LOCATION OF CIRCUIT BOARD

■ ANORDNUNG DER SCHALTPLATTE



Top View — Draufsicht

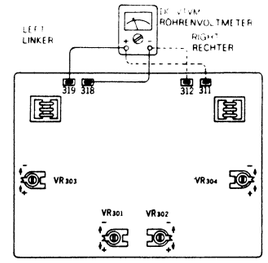


Bottom View — Unteranicht

ALIGNMENT INSTRUCTIONS - READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Notes :

1. Volume control ..... Minimum
2. Speakers switch..... OFF (Icq)
   ON (DC Unbalance)
3. Other controls ..... Optional position
4. Maintain line voltage at rated voltage.
5. The adjustment should be started 5 minutes after setting the power switch to the ON position.
6. Before the adjustment, Icq adjusting volumes (VR303 and VR304) should be turned to the ⊖ side completely.
7. Before the adjustment, DC unbalance adjusting volumes (VR301 and VR302) should be set to the middle position.



CIRCUIT	VTVM CONNECTION	ADJUSTMENT	REMARKS
Icq	Connect VTVM to No. 319 ⊕, 318 ⊖ (left ch.) and No. 311 ⊕ , 312 ⊖ (right ch.) terminals of set.	VR303 (left) VR304 (right)	Make adjustments so that the indication on VTVM becomes 10 mV.
DC Unbalance	Connect VTVM to speakers terminal.	VR301 (left) VR302 (right)	Make sure that VTVM become 0.

ABGLEICHANWEISUNGEN — VOR DEM ABGLEICH SORGFALTIG DURCHLESEN

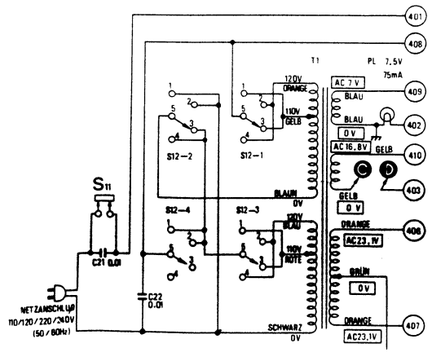
Anmerkungen :

1. Lautstärkenregler ..... Minimum
2. Lautsprecherschalter (Speaker) ..... OFF (Icq)
   ON (DC Unsymmetrie)
3. Weitere Badienungselemente.....Beliebige Stellung
4. Netzspannung auf Nennspannung halten.
5. Die Einstellungsarbeit 5 Minuten nach dem Einschalten des Netzschalters anfangen.
6. Vor der Einstellung die Icq Einstellstärkeregler (VR303, VR304) nach ⊖ Seite drehen und ausschalten.
7. Vor der Einstellung die unsymmetrischen Gleichstromregler (VR301, VR302) im Mitte der Drehskala stellen.

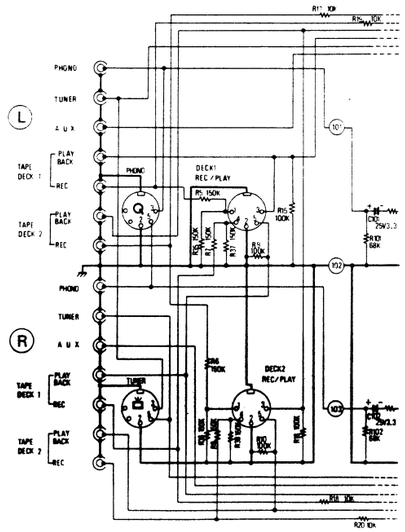
SCHALTUNG	SCHALTUNG DES RÖHRENVOLTMETERS	ABGLEICHEN	BEMERKUNGEN
Icq	An Nr. 319 ⊕, 318 ⊖ (linker) und Nr. 311 ⊕ , 312 ⊖ (rechter) anschließen.	VR303 (linker) VR304 (rechter)	Der Abgleich muß so erfolgen daß der Röhrenvoltmeter 10 mV anzeigt.
DC Unsymmetrie	An Lautsprecherschwingspule anschließen.	VR301 (linker) VR302 (rechter)	Der Röhrenvoltmeter muß 0 anzeigen.

■ SCHEMATIC DIAGRAM FOR GERMANY

■ FÜR DEUTSCH SCHALTBILD

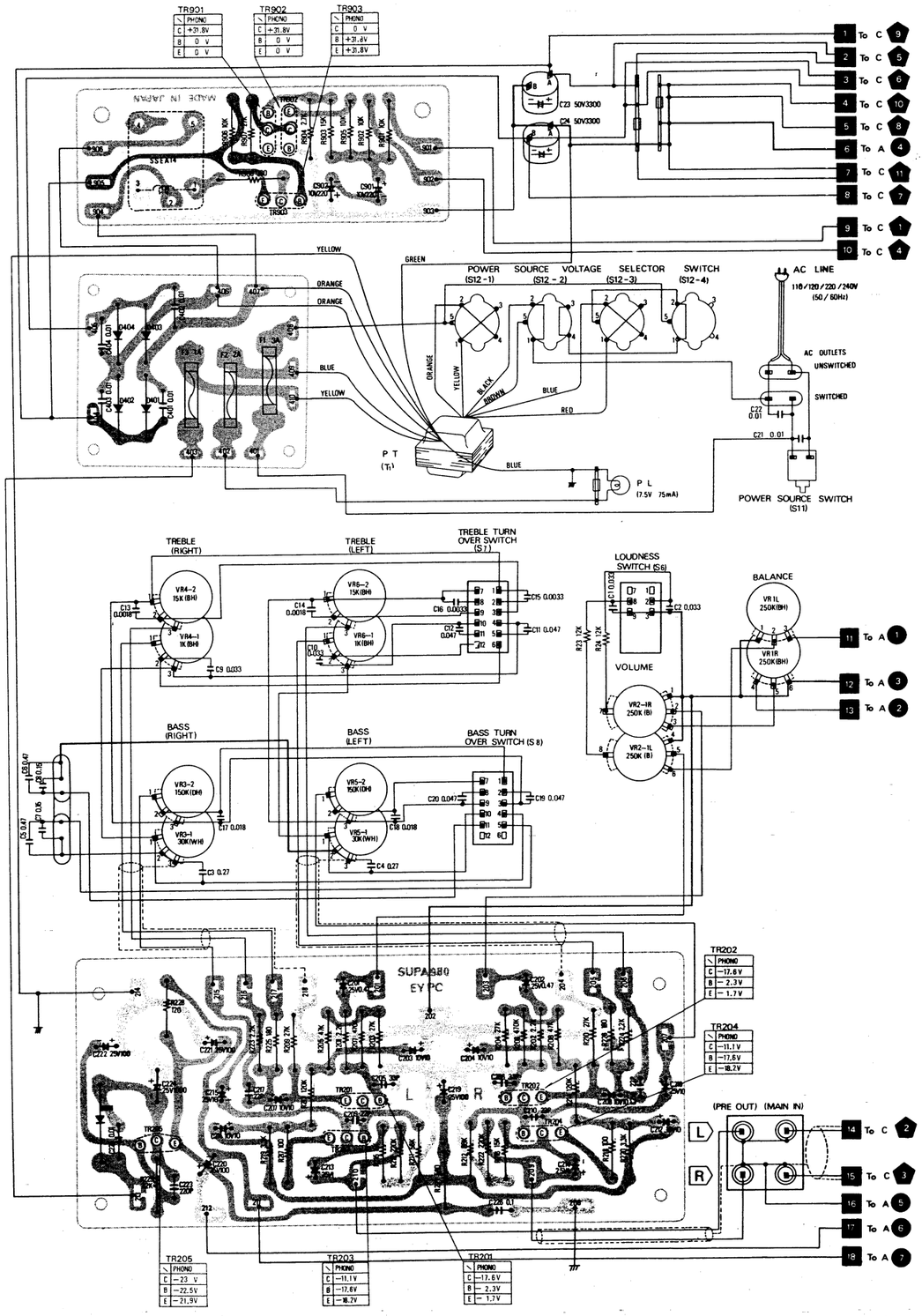


Stromversorgung

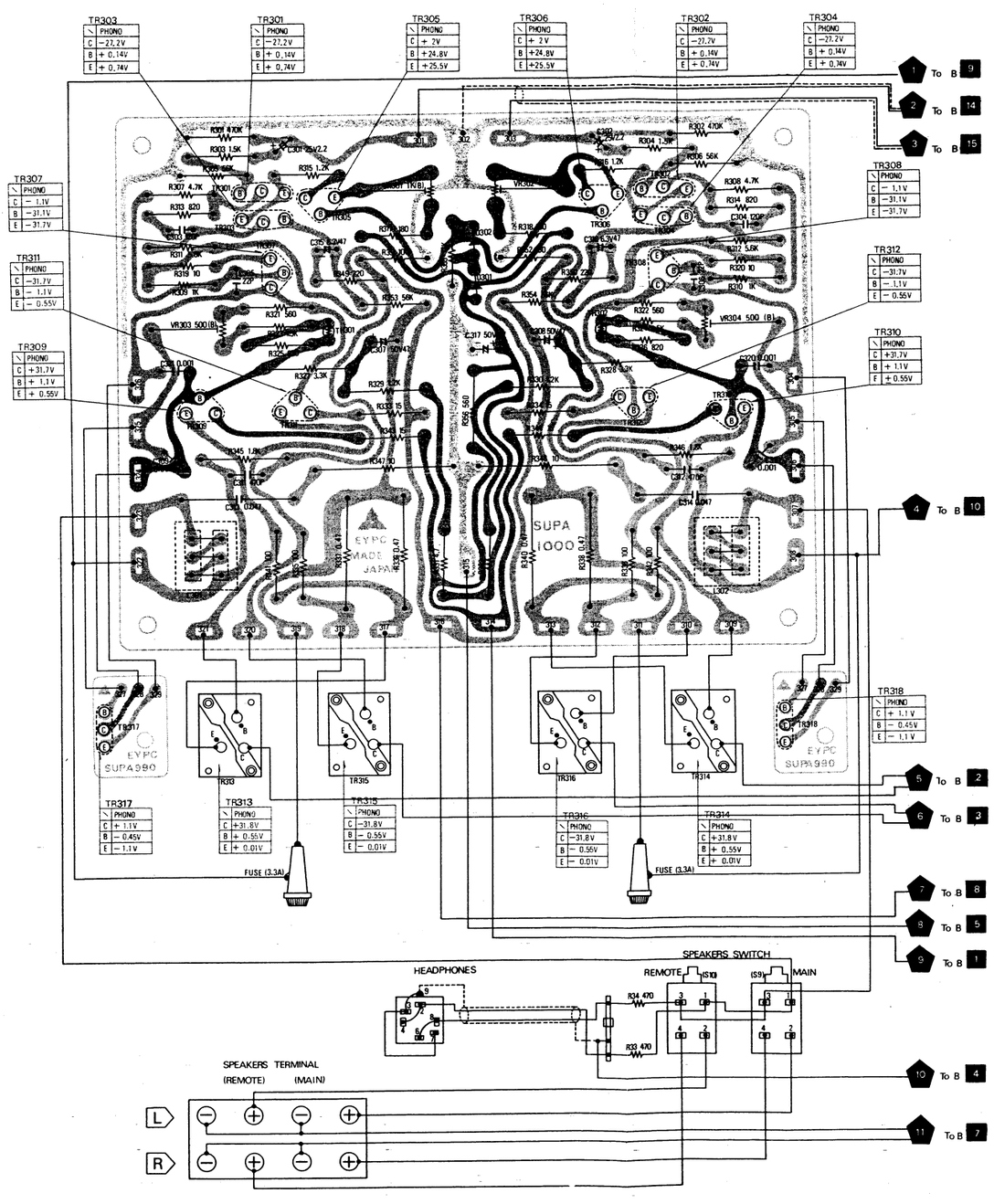


Eingangswähler

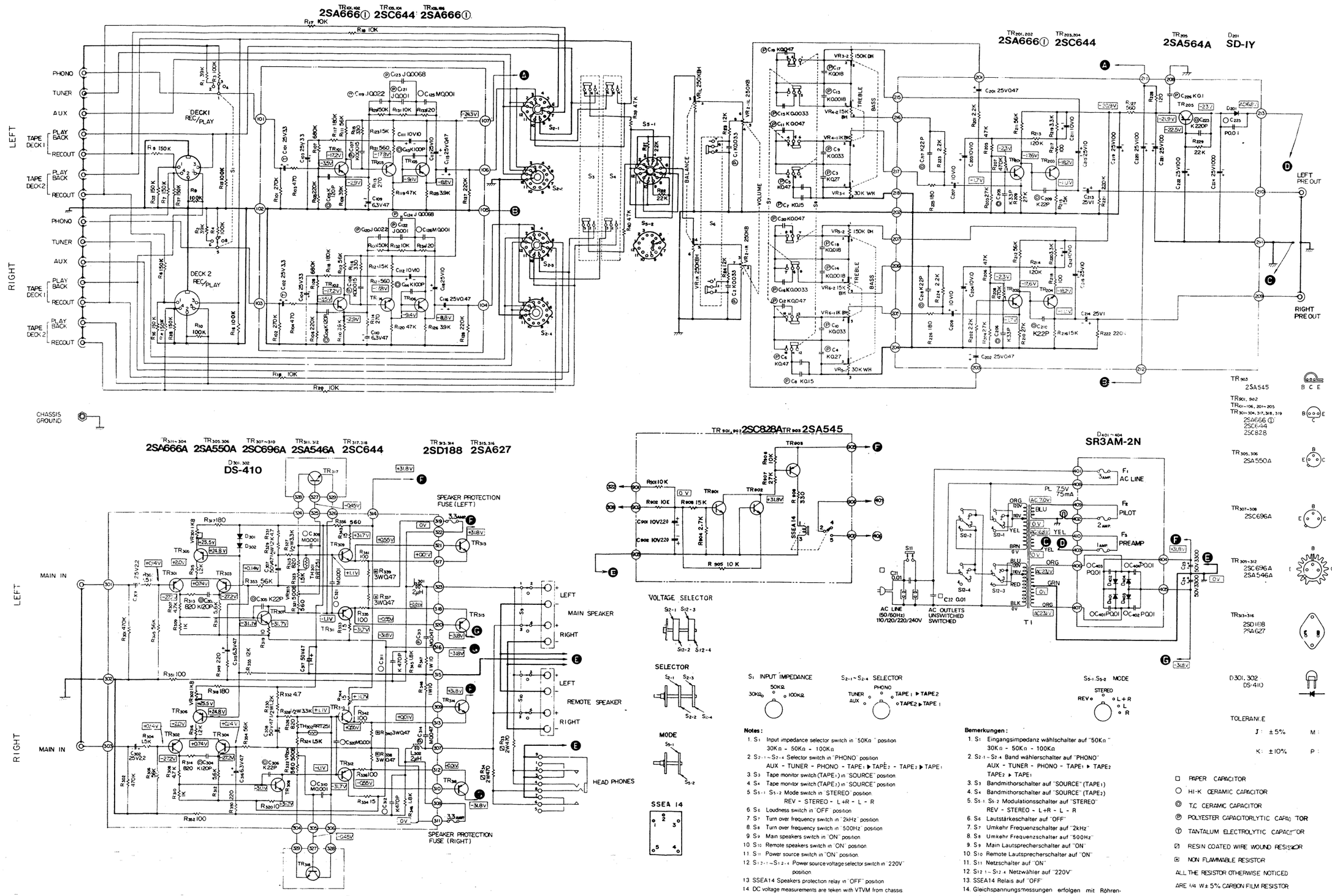
B Control, Power Supply and Speaker Protection Circuit Board — Model SU-3400



C Driver Circuit Board — Model SU-3400



Schematic Diagram Model- SU-3400 (This schematic diagram may be modified with development of technology.)



Notes :

1. S_1 Input impedance selector switch in "50Kn " position
2. S_{2-1}~S_{2-4} Selector switch in "PHONO" position
   AUX - TUNER - PHONO - TAPE1 ▶ TAPE2 - TAPE2 ▶ TAPE1
3. S_3 Tape monitor switch (TAPE1) in "SOURCE" position
4. S_4 Tape monitor switch (TAPE2) in "SOURCE" position
5. S_{5-1} S_{5-2} Mode switch in "STEREO" position
   REV - STEREO - L+R - L - R
6. S_6 Loudness switch in "OFF" position
7. S_7 Turn over frequency switch in "2kHz" position
8. S_8 Turn over frequency switch in "500Hz" position
9. S_9 Main speakers switch in "ON" position
10. S_{10} Remote speakers switch in "ON" position
11. S_{11} Power source switch in "ON" position
12. S_{12-1}~S_{12-4} Power source voltage selector switch in "220V" position
13. SSEA14 Speakers protection relay in "OFF" position
14. DC voltage measurements are teken with VTVM from chassis

Bemerkungen :

1. S_1 Eingangsimpedanz wählschalter auf "50Kn " 30Kn - 50Kn - 100Kn
2. S_{2-1}~S_{2-4} Band wählerschalter auf "PHONO" AUX - TUNER - PHONO - TAPE1 ▶ TAPE2 TAPE2 ▶ TAPE1
3. S_3 Bandmithorschalter auf "SOURCE" (TAPE1)
4. S_4 Bandmithorschalter auf "SOURCE" (TAPE2)
5. S_{5-1} S_{5-2} Modulationsschalter auf "STEREO" REV - STEREO - L+R - L - R
6. S_6 Lautstärkeschalter auf "OFF"
7. S_7 Umkehr Frequenzschalter auf "2kHz"
8. S_8 Umkehr Frequenzschalter auf "500Hz"
9. S_9 Main Lautsprecherschalter auf "ON"
10. S_{10} Remote Lautsprecherschalter auf "ON"
11. S_{11} Netzschalter auf "ON"
12. S_{12-1} ~ S_{12-4} Netzwähler auf "220V"
13. SSEA14 Relais auf "OFF"
14. Gleichspannungsmessungen erfolgen mit Röhrenvoltmeter in bezug auf Chassispotential

■ TO REMOVE CABINET AND FRONT PANEL

1. Remove four (4) cabinet-mounting screws, nos. ① ~④, as illustrated in fig. 1. [XSB4+10KS]
2. Remove cabinet from chassis.
3. To remove the front panel, the pre-set device should be first removed.
4. Remove pre-set volume control knob and balance, bass, treble, selector switch knobs and mode switch knobs from front view.
5. Remove six (6) front panel-mounting screws, nos ⑤ ~ ⑩, as illustrated in fig. 1.
6. Remove front panel from chassis.
7. Remove four (4) front panel-mounting screws, nos ⑪, ⑫, as illustrated in fig. 2. Then front panel can be moved in front of chassis.

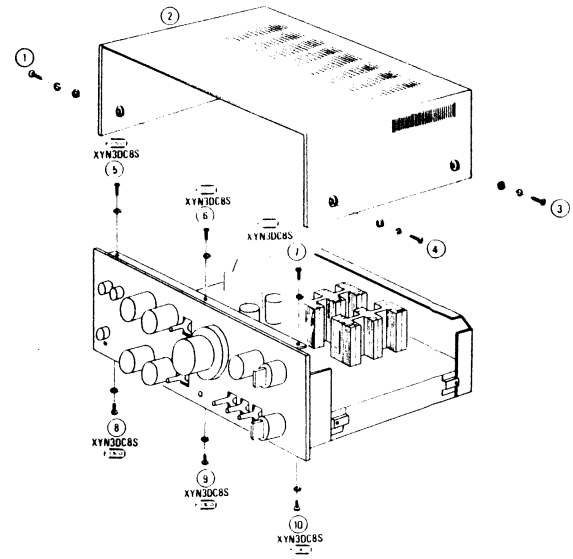


Fig. 1 **Abb. 1**

■ AUSBAUEN DES GEHÄUSE UND FRONTPANEEL

1. Die vier (4) Gehäuse-Befestigungsschrauben Nr. ① ~ ④ entfernen. (Vgl. Abb. 1) [XSB4+16BVCS]
2. Gehäuse vom Chassis abnehmen.
3. Um das Paneel zu demontieren, das Preset-Gerät zuerst abnehmen.
4. Preset-Gerätknöpfe und Balanceregler, Tiefenregler, Höhenregleg, Bereichs-schalterknöpfe, Modeschalterknöpfe vom Frontplatte abnehmen.
5. Die sechs (6) Frontpaneel-Befestigungsschrauben Nr. ⑤ ~ ⑩ entfernen. (Vgl. Abb. 1)
6. Frontpaneel vom Chassis abnehmen.
7. Die vier (4) Frontpaneel-Befestigungsschrauben Nr. ⑪, ⑫ entfernen. (Vgl. Abb. 2) Dann kann das Erreger-Druckkreisbrett vorn oder hinten abgesetzt werden.

■ TO REMOVE BOTTOM BOARD

1. Remove eleven (11) red bottom board-mounting screws, nos ① ~⑪, as illustrated in fig. 3.

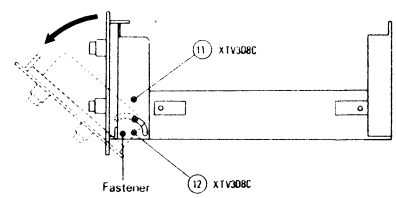


Fig. 2 **Abb. 2**

■ ABNEHMEN DER BODENPLATTE

1. Die elf(11) rote Bodenplatte-Befestigungsschrauben Nr. ①~⑪ entfernen. (Vgl. Abb. 3)

■ TO REMOVE PRESET

1. Remove volume control knob.
2. Push the preset device into the inner part by one hand and, holding the E-ring with pliers, wrench it out. Refer to fig. 4.
3. Removing the twist spring attached on the reverse side of the front panel permits to remove the preset mechanism.
4. When mounting the E-ring, push in the preset device as when it was removed and, holding the E-ring with pliers, mount it. Refer to fig. 5.
5. For details, please refer to the Exploded Views of the preset mechanism. Refer to fig. 6.

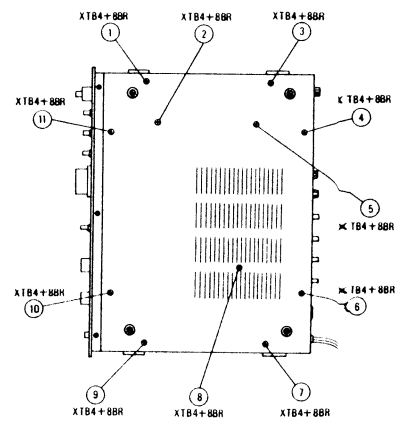


Fig. 3 **Abb. 3**

■ ABNEHMEN DER PRESET-GERÄT

1. Lautstärkeregelungknöpfe vom Frontpaneel abnehmen.
2. Das Preset-Gerät mit einer Hand nach Innen schieben, und den E-Ring mit der Zange angreifen und herausdrehen. (Vgl. Abb. 4)
3. Das hinter dem Vorderpaneel eingesetzten Torsionsfeder abstellen. Dann Kann man das Preset-Mechanismus herausnehmen.
4. Zum montieren des E-Rings, zuerst das Preset-Gerät einschieben und, wie im Fall vom Demontieren, den E-Ring mit der Zange einsetzen. (Vgl. Abb. 5)
5. Über Nähre Kann man dem Detaillezeichnung vom Preset-Mechanismus entnehmen. (Vgl. Abb. 6)

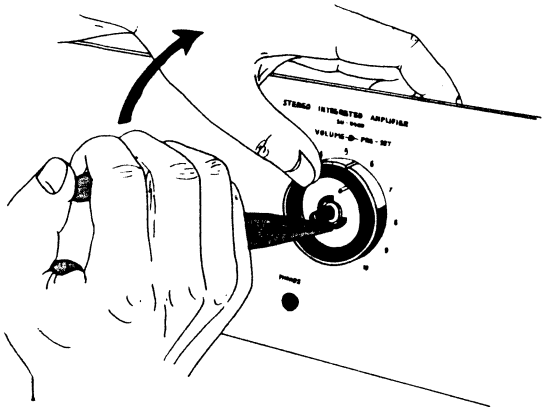


Fig. Abb. 4

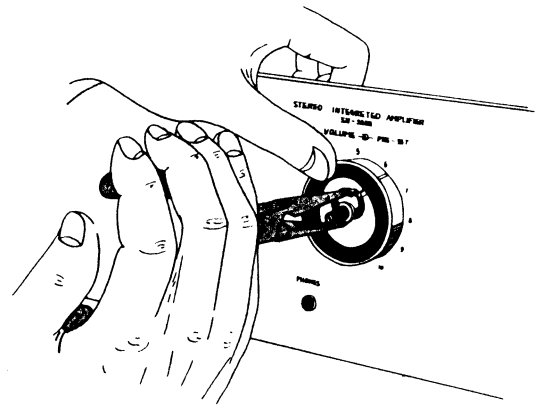


Fig. 5 Abb. 5

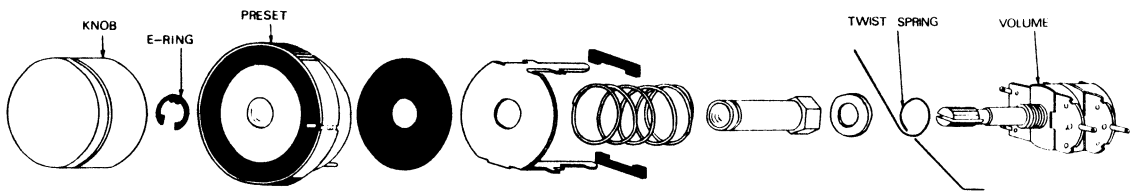
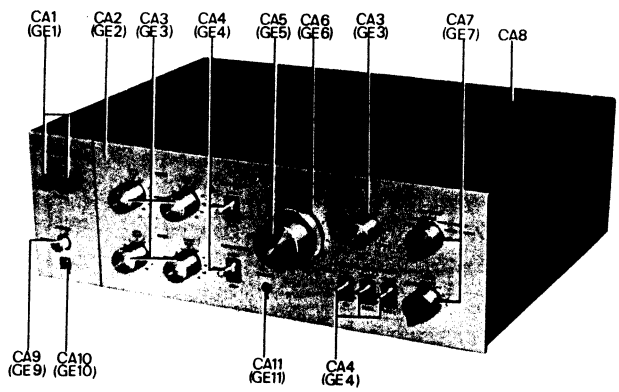


Fig. 6 Abb. 6

CABINET PARTS LOCATION

ANORDNUNG DER TEILE AM GEHÄUSE



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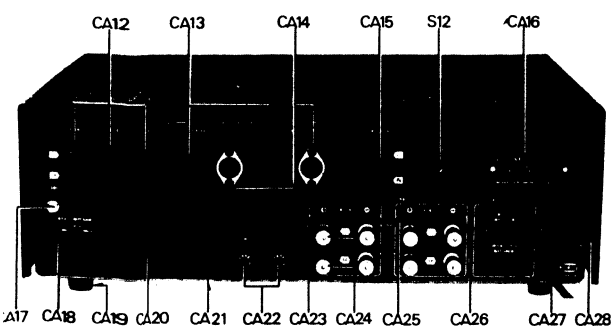
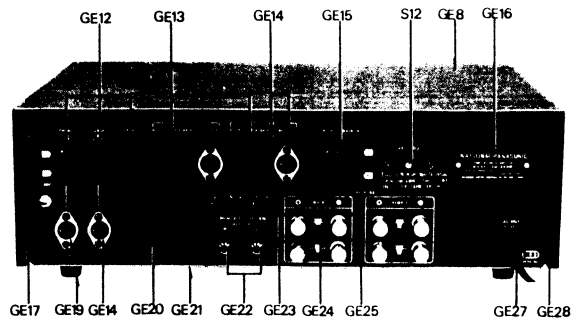
- Das nach Deutschland zu liefernde Gerät ist in die Holzkiste eingepackt.

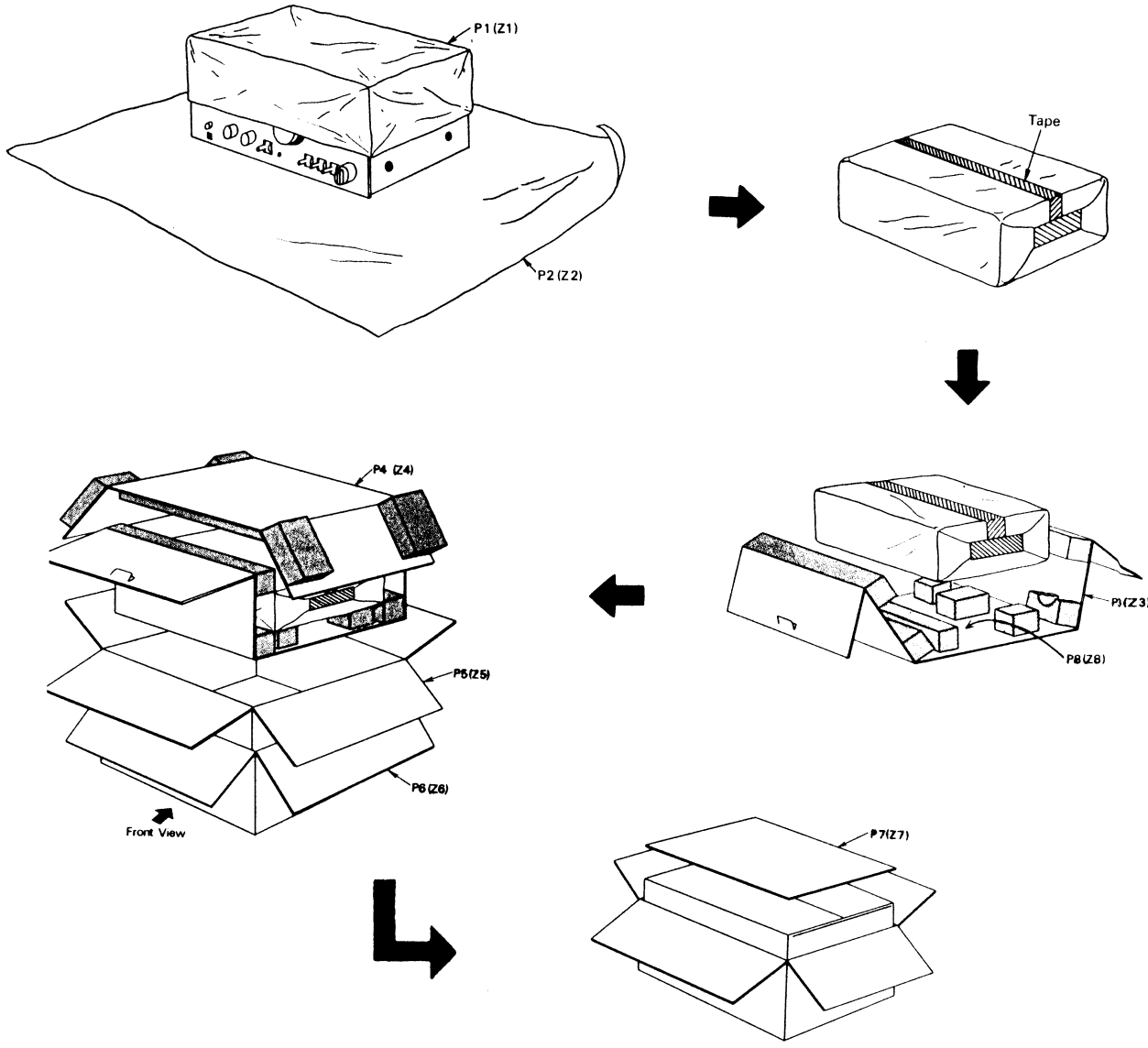


Set for Germany

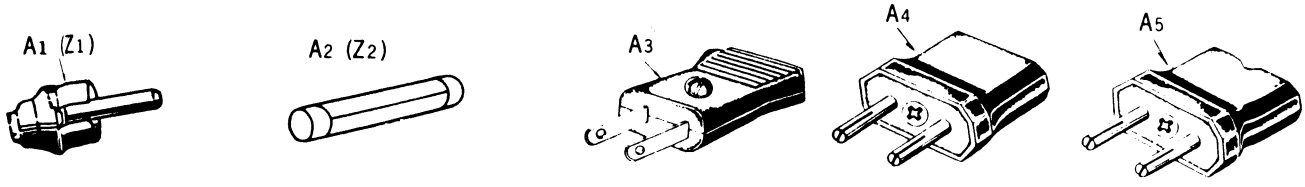


■ PACKING PARTS LOCATION

■ PACKANORDNUNG



■ ACCESSORIES ■ ZUBEHOR



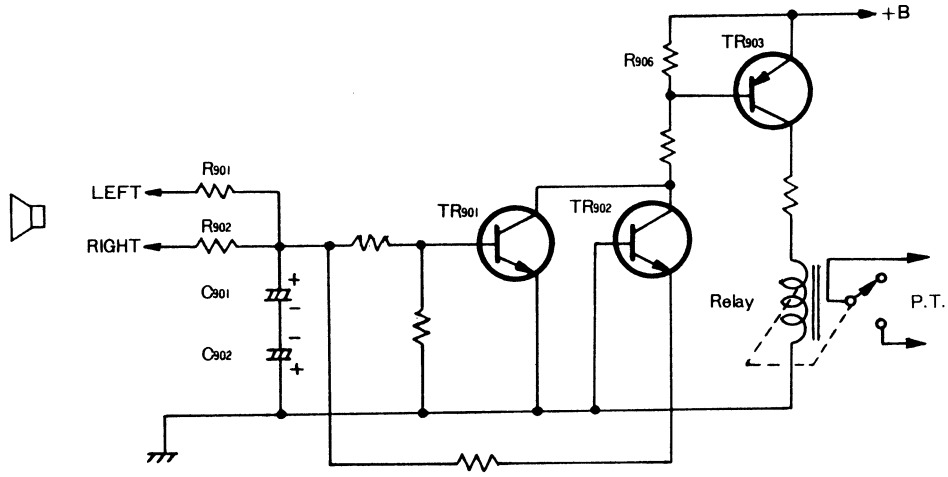
SERVICE AID

* DC voltage speaker protecting circuit used in this set

(1) When DC voltage appears at the speaker terminal, the relay operates no matter whether the speaker switch position be ON or OFF, so that the secondary winding of the power transformer is shorted to break the fuse of the primary side, thereby protecting the speaker from damage.

(2) When positive voltage appears at the speaker terminal, it goes to the base of TR901 through the integrating circuit composed of R901, R902, C921 and C902, and TR901 is then placed into the ON state to apply collector current. Because this voltage brings about voltage at R906 and places TR903 into the ON state, current runs through the relay, which operates to break the fuse of the primary side.

(3) When negative voltage appears at the speaker terminal, the voltage generated at the terminal of C901 and C902, like in the case of the above-mentioned positive voltage, places TR902 into the ON state. Consequently TR903 is turned ON to energize the relay, thereby breaking the fuse on the primary side.



Note:

Regarding a high output amplifier such as is used in this set, even when the speaker is not connected while the power switch is ON, a big shock noise caused by too quick operation of knobs or by insertion or disconnection of the input terminal pin jack with the sound volume raised may energize the speaker protecting circuit, which breaks the fuse on the primary side.

■ REPLACEMENT PARTS LIST

NOTES:

1. Part numbers are indicated on most mechanical parts. Please use this number, for parts which have no Ref. No.
2. Ⓝ indicates the New Parts.
3. A~C rank : A rank parts will cover 80% of repair needs.
   A+B rank parts will cover 95% of repair needs.
   C rank parts are less necessary.
4. Please use the "Price" column as desired.

Bemerkungen:

1. Die meisten mechanischen Teile sind mit Teilnummern versehen. Bitte geben Sie diese Nummern an, sofern die Teile keine Bezugsnummern haben.
2. Ⓝ bedeutet: Neue Teile.
3. Gruppen A~C: Teile der Gruppe **A** machen 80% des Ersatzteilbedarfes aus.
   Teile der Gruppen **A** und **B** machen 95% des Ersatzteilbedarfes aus.
   Teile der Gruppe **C** werden seltener benötigt.
4. In die Spalte "Preise" können Sie Ihre eigenen Eintragungen machen.

SU-3400

Ref. No. / Bezugs Nr.	Part No. / Teil Nr.	Description / Bezeichnung	Per Set (Pcs.) / Stückzahl pro Gerät	Remarks / Bemerkungen
TRANSISTORS, DIODES and THERMISTORS TRANSISTOREN, DIODEN und THERMISTOREN				
TR101, 102, 105, 106, 201, 202	2SA666Ⓓ-R,S	Equalizer & Control Amplifier	6	Ⓝ A
TR301, 302, 303, 304	2SA666A-P,Q	Differential Amplifier	4	A
TR103, 104, 203, 204, 317, 318	2SC644Q,R	Equalizer, Control Amp. & Therme Compensation	6	A
TR205	2SA564A-Q,R	Ripple Filter	1	A
TR305, 306	2SA550A-Q,R,S	AF Amplifier	2	A
TR307, 308	2SC696A-D,B, A	AF Amplifier	2	A
TR309, 310	2SC696A-A,B,D,E,H	Driver Amplifier (Use with pair)	2	A
TR311, 312	2SA546A-A,B,D,E,H	Drive Amplifier (Use with pair)	2	A
TR313, 314	2SD188L,M,N	Power Amplifier (Use with pair)	2	Ⓝ A
TR315, 316	2SA627L,M,N	Power Amplifier (Use with pair)	2	Ⓝ A
TR901, 902	2SC828A-Q,R,S	Switching, Speaker Protection	2	A
TR903	2SA545L	Switching, Speaker Protection	1	A
D201	RVDSD-1Y	Rectifier	1	A
D301, 302	RVDDS-410	A.O.C.	2	A
D401, 402, 403, 404	RVDSR3AM-2N	Rectifier	4	A
TH301, 302	RRT251	Thermo Conpensation	2	A
COILS and TRANSFORMER SPULEN und TRANSFORMATOR				
L301, 302	SLEA5001-N	High Charactor Stabilizer	2	B
T301	SLTA5Q6S-W	Power Transformer	1	Ⓝ A
RESISTORS WIDERSTÄNDE				
R331, 332	ERD14TJ4R7	4.7ohm, 1/4W, ±5%, Carbon	2	B
R319, 320	ERD14TJ100	10ohm, 1/4W, ±5%, Carbon	2	B
R333, 334, 343, 344	ERD14TJ150	15ohm, 1/4W, ±5%, Carbon	4	B
R217, 218, 336, 336, 341, 342 351, 352	ERD14TJ101	100ohm, 1/4W, ±5%, Carbon	8	B
R133, 134, 228	ERD14TJ121	120ohm, 1/4W, ±5%, Carbon	3	B
R225, 226, 317, 318	ERD14TJ181	180ohm, 1/4W, ±5%, Carbon	4	B
R349, 350	ERD14TJ221	220ohm, 1/4W, ±5%, Carbon	2	B
R113, 114	ERD14TJ271	270ohm, 1/4W, ±5%, Carbon	2	B
R115, 116, 908	ERD14TJ331	330ohm, 1/4W, ±5%, Carbon	3	B
R103, 104	ERD14TJ471	470ohm, 1/4W, ±5%, Carbon	2	B
R121, 122, 227, 321, 322	ERD14TJ561	560ohm, 1/4W, ±5%, Carbon	5	B
R313, 314, 325, 326	ERD14TJ821	820ohm, 1/4W, ±5%, Carbon	4	B
R309, 310	ERD14TJ102	1Kohm, 1/4W, ±5%, Carbon	2	B
R315, 316	ERD14TJ122	1.2Kohm, 1/4W, ±5%, Carbon	2	B
R303, 304, 323, 324	ERD14TJ152	1.5Kohm, 1/4W, ±5%, Carbon	4	B
R201, 202, 223, 224	ERD14TJ222	2.2Kohm, 1/4W, ±5%, Carbon	4	B
R904	ERD14TJ272	2.7Kohm, 1/4W, ±5%, Carbon	1	B
R219, 220	ERD14TJ332	3.3Kohm, 1/4W, ±5%, Carbon	2	B
R125, 126	ERD14TJ392	3.9Kohm, 1/4W, ±5%, Carbon	2	B
R307, 308	ERD14TJ472	4.7Kohm, 1/4W, ±5%, Carbon	2	B
R311, 312	ERD14TJ562	5.6Kohm, 1/4W, ±5%, Carbon	2	B
R17, 18, 19, 20, 131, 132, 901, 902, 905, 906	ERD14TJ103	10Kohm, 1/4W, ±5%, Carbon	10	B
R23, 24, 355	ERD14TJ123	12Kohm, 1/4W, ±5%, Carbon	3	B
R123, 124, 215, 216, 903	ERD14TJ153	15Kohm, 1/4W, ±5%, Carbon	5	B
R21, 22, 229	ERD14TJ223	22Kohm, 1/4W, ±5%, Carbon	3	B
R203, 204, 209, 210, 907	ERD14TJ273	27Kohm, 1/4W, ±5%, Carbon	5	B
R1, 2, 109, 110	ERD14TJ393	39Kohm, 1/4W, ±5%, Carbon	4	B
R39, 40, 119, 120, 205, 206	ERD14TJ473	47Kohm, 1/4W, ±5%, Carbon	6	B
R111, 112, 211, 212, 353, 354 305, 306	ERD14TJ563	56Kohm, 1/4W, ± 5%, Carbon	8	B
R3, 4, 9, 10, 15, 16	ERD14TJ104	100Kohm, 1/4W, ± 5%, Carbon	6	B
R213, 214	ERD14TJ124	120Kohm, 1/4W, ± 5%, Carbon	2	B
R5, 6, 7, 8, 35, 36, 37, 38, 129, 130	ERD14TJ154	150Kohm, 1/4W, ± 5%, Carbon	10	B
R117, 118	ERD14TJ184	180Kohm, 1/4W, ± 5%, Carbon	2	B
R105, 106, 127, 128, 221, 222	ERD14TJ224	220Kohm, 1/4W, ± 5%, Carbon	6	B
R101, 102	ERD14TJ274	270Kohm, 1/4W, ± 5%, Carbon	2	B
R207, 208, 301, 302	ERD14TJ474	470Kohm, 1/4W, ± 5%, Carbon	4	B
R107, 108	ERD14TSJ684	680Kohm, 1/4W, ± 5%, Carbon	2	B
R329, 330	ERD12TJ122	1.2Kohm, 1/2W, ± 5%, Carbon	2	B
R345, 346	ERD12TJ182	1.8Kohm, 1/2W, ± 5%, Carbon	2	B
R327, 328	ERD12TJ332	3.3Kohm, 1/2W, ± 5%, Carbon	2	B
R356	ERD12TJ561	560ohm, 1/2W, ± 5%, Carbon	1	B
R347, 348	ERD1PZK100	10ohm, 1W, ±10%, Carbon	1	B
R337, 338, 339, 340	ERF3SKR47	0.47ohm, 3W, ±10%, Non Flammable	4	B
R33, 34	ERM2P471	470ohm, 2W, ± 5%, Wire	2	C
R101, 102	ERD14TJ683	68Kohm, 1/4W, (Set for German)	2	C
VARIABLE RESISTORS EINSTELLWIDERSTÄNDE				
VR1	EVFK8A432252	Balance Control 250Kohm (BH)	1	Ⓝ A
VR2	EVGK1AU40BF5	Volume Control 250Kohm (B)	1	Ⓝ A
VR3, 5	EVFK9A431731	Bass Control 150Kohm (DH) 30Kohm (WH)	2	Ⓝ A
VR4, 6	EVFK9A431B02	Treble Control, 15Kohm (BH) 1Kohm (BH)	2	Ⓝ A
VR301, 302	EVLS3AA00B13	DC Unbalance Adj 1Kohm (B)	2	A
VR303, 304	EVLS3AA00B52	ICQ Adj 500ohm (B)	2	A
CAPACITORS KONDENSATOREN				
C205, 206	ECCD05330K	33mmf, 50WV, ±10% Ceramic	2	C
C113, 114	ECCD05101K	100mmf, 50WV, ±10% Ceramic	2	C
C105, 106, 303, 304	ECCD05121K	120mmf, 50WV, ±10% Ceramic	4	C
C223	ECCD05221K	220mmf, 50WV, ±10% Ceramic	1	C
C209, 210, 217, 218	ECCD05220KC	22mmf, 50WV, ±10% Ceramic	4	C
C305, 306	ECCD5220K	22mmf, 500WV, ±10% Ceramic	2	C
C125, 126, 309, 310, 320 321	ECKE05102MY	0.001mfd, 50WV, ±20% Ceramic	6	C
C225, 401, 402, 403, 404	ECKD5103P	0.01mfd, 500WV, +100 −0% Ceramic	5	C
C311, 312	ECKD5471K	470mmf, 500WV, ±10% Ceramic	2	C
C21, 22	ECNU4A103M	0.01mfd, 400WV, ±20% Paper	2	C
C107, 108	ECQG05152KZN	0.0015mfd, 50WV, ±10% Polyester	2	C
C13, 14	ECQG05182KZN	0.0018mfd, 50WV, ±10% Polyester	2	Ⓝ C
C15, 16	ECQG05332KZN	0.0033mfd, 50WV, ±10% Polyester	2	C
C17, 18	ECQG05183KZN	0.018mfd, 50WV, ±10% Polyester	2	Ⓝ C
C1, 2, 9, 10	ECQG05333KZN	0.033mfd, 50WV, ±10% Polyester	4	C
C11, 12, 19, 20	ECQG05473KZN	0.047mfd, 50WV, ±10% Polyester	4	C
C7, 8	ECQM05154KZ	0.15mfd, 50WV, ±10% Polyester	2	Ⓝ C
C3, 4	ECQM05274KZ	0.27mfd, 50WV, ±10% Polyester	2	Ⓝ C
C5, 6	ECQM05474KZ	0.47mfd, 50WV, ±10% Polyester	2	Ⓝ C
C226	ECQG05104KZN	0.1mfd, 50WV, ±10% Polyester	1	C
C121, 122	ECQG05102JZN	0.001mfd, 50WV, ± 5% Polyester	2	C
C123, 124	ECQG05682JZN	0.0068mfd, 50WV, ± 5% Polyester	2	C
C119, 120	ECQG05223JZN	0.022mfd, 50WV, ± 5% Polyester	2	Ⓝ C
C313, 314	ECQM1473M	0.047mfd, 125WV, ±20% Polyester	2	C
C23, 24	ECEM50R3300E	3300mfd, 50WV, Electrolytic	2	B
C109, 110, 315, 316	ECEA6V47	47mfd, 6.3WV, Electrolytic	4	B
C111, 112, 203, 204, 207, 208 211, 212	ECEA10V10	10mfd, 10WV, Electrolytic	8	B
C901, 902	ECEA10V220	220mfd, 10WV, Electrolytic	2	B
C117, 118, 215, 216	ECEA25V10	10mfd, 25WV, Electrolytic	4	B

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C103. 104	ECEA25V33	33mfd. 25WV. Electrolytic	2	Ⓝ B
C219. 220. 221. 222	ECEA25V100	100mfd. 25WV. Electrolytic	4	B
C224	ECEA25V1000	1000mfd. 25WV. Electrolytic	1	Ⓝ B
C307. 308. 317	ECEA50V47	47mfd. 50WV. Electrolytic	3	B
C101. 102	ECSZ25EG3R3	3.3mfd. 25WV. Electrolytic	2	B
C115. 116 201. 202	ECAG25ER47	0.47mfd. 25WV. Electrolytic	4	B
C301. 302	ECSY25EF2R2	2.2mfd. 25WV. Electrolytic	2	B
C213. 214	ECSY25EF1	1mfd. 25WV. Electrolytic	2	B
SWITCHS and RELAY SCHALTER und RELAIS				
S1	ESRE143L15Z	Impedance Selector [Nothing. Set for German]	1	Ⓝ B
S2	SSRA9	Selector Switch	1	Ⓝ B
S3. 4. 6	SSLA7S	Tape-Monitor & Loudness Switch	3	Ⓝ A
S5	SSRA10	Mode Switch	1	Ⓝ B
S7. 8	SSLA6S	Turn Over Switch	2	Ⓝ A
S9. 10	SSHA7S	Speakers Switch	2	A
S11	SSHA9S	Power Source Switch	1	A
S12	SSRA7S	Voltage Selector Switch	1	B
	SSEA1A	Relay. Speakers Protection	1	Ⓝ A
CABINETS GEHÄUSE				
CA1 (GE1)	SBCA32	Button. Speakers Switch	2	Ⓝ A
CA2 (GE2)	SGWA510	Panel Only	1	Ⓝ C
CA3 (GE3)	SBNA59	Knob. Bass. Treble & Balance	5	Ⓝ A
CA4 (GE4)	SBNA61	Knob. Turn Over. Loudness & Tape Monitor	5	Ⓝ A
CA5 (GE5)	SBNA60	Knob. Volume	1	Ⓝ A
CA6 (GE6)	SBNA62	Knob. Pre-Set	1	Ⓝ A
CA7 (GE7)	SBNA58	Knob. Selector & Mode Switch	2	Ⓝ A
CA8	SKAA340	Cabinet Only	1	Ⓝ B
(GE8)	SKAA370	Holzgehäuse	1	Ⓝ B
CA9 (GE9)	SBCA31	Button. Power Source Switch	1	Ⓝ A
	XAM37T75	Light. Power Source Switch (7.5V 75mA)	1	A
CA10 (GE10)	SGBA30	Badge	1	C
CA11 (GE11)	SJJA9	Headphones	1	B
CA12 (GE12)	SJFA3602	Terminal. Phono. Tuner. Aux	1	C
CA13 (GE13)	SJFA3407	Terminal. Tape-Monitor	2	C
CA14	RJS31-1	DIN Socket. Tape-Monitor	2	B
(GE14)	RJS31-1	Diodenbuchse	4	B
CA15 (GE15)	SJFA3405	Terminal. Pre-Main Connector	1	C
	SJPA9201	Short Pin	2	B
CA16 (GE16)	SGTA780	Name Plate	1	Ⓝ C
CA17 (GE17)	SNEA404	Nut. Ground Terminal	1	C
CA18 ★	SBNA34	Knob. Impedance Selector	1	A
CA19 (GE19)	SHRA202	Leg	4	C
CA20	SGPA11A	Rear Panel	1	Ⓝ B
(GE20)	SGPA50A	Rückwand	1	Ⓝ B
CA21 (GE21)	SKUA190	Bottom Board	1	Ⓝ C
CA22 (GE22)	SJFA101	Holder. SP. Protection Fuse	2	C
CA23 (GE23)	SMXA31-1	Spacer. [Red]	4	C
CA24 (GE24)	SJTA802	Nut. Speakers Terminal	8	Ⓝ B
	SJTA801S	Volt. Speakers Terminal	8	Ⓝ B
CA25 (GE25)	SMXA31	Spacer. [Gray]	4	C
CA26 ★	SJSA9202	Socket. AC Outlet	2	C
CA27	RJA30	AC Cord. Power Source	1	B
(GE27)	SJAA3	AC Netzkabel	1	B
CA28 (GE28)	RHR111	Bushing. AC Cord	1	C
	XSB4+10KS	Screw. Cabinet M'tg.	4	B
	XTB4+8BR	Red Screw. Bottom Board M'tg.	11	C
	XSB4+16BVCS	Screw. Wood Cabinet M'tg (Set for German)	4	Ⓝ C

Ref. No. / Bezugs Nr.	Part No. / Teil Nr.	Description / Bezeichnung	Per Set (Pcs.) / Stückzahl pro Gerät	Remarks / Bemerkungen
CHASSIS CHASSIS				
	SJVA1201S	Socket. Power Transistor	4	Ⓝ C
	SNEA907	Fastener	2	B
	XBAIE30NR5	Fuse. 3A (F1)	1	Ⓝ A
	XBAIE20NR5	Fuse. 2A (F2)	1	A
	XBA1E10NR5	Fuse. 1A (F1)	1	A
	XBAS1A3301	Fuse. 3.3A SP. Protection	2	A
	RJF107-1	Terminal. (F1) (F2) (F3)	6	C
	XYN3DC8S	Screw. Panel M'tg.	6	C
ACCESSORIES ZUBEHÖR				
A1 (Z1)	RJP5	Pin Plug	4	B
A2 (Z2)	XBASIA3301	Fuse. 3.3A SP. Protection	4	A
A3	SJP15S	AC Plug	1	B
A4	RJP74	AC Plug	1	B
A5	RJP75	AC Plug	1	B
PACKINGS VERPACKUNG				
P1 (Z1)	SPPA16-1	Soft Cover	1	C
P2 (Z2)	SPHA6004	Polyethylene Sheet	1	C
P3 (Z3)	SPNA137	Inside Carton (Lower)	1	Ⓝ C
P4 (Z4)	SPNA138	Inside Carton (Upper)	1	Ⓝ C
P5 (Z5)	SPNA140	Carton Box (Inner)	1	Ⓝ C
P6 (Z6)	SPGA 71	Carton Box (Outer)	1	Ⓝ C
P7 (Z7)	SPNA139	Top Board. Carton Box	1	Ⓝ C
P8	SQFA75	Printed Matter	1	Ⓝ B
(Z8)	SQFA77	Druckschriften	1	Ⓝ B

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